

UNDESCRIBED SPECIES OF CRANE-FLIES FROM NEW ZEALAND.

(Tipulidæ, Diptera).

By CHARLES P. ALEXANDER.

The new species of New Zealand Tipulidæ described in this paper were included in extensive collections sent to the writer by Dr. Campbell, collected by Messrs. Gourlay, Harris, Howes and himself; collections from Dr. Tillyard and Mr. Philpott in the Cawthron Institute; and a small but interesting lot from the alpine zone of Mt. Ruapehu, sent by Mr. Watt. The writer is very greatly indebted to all the above mentioned gentlemen for this material. The holotypes are preserved in the writer's collection except where stated to the contrary.

Mr. F. W. Edwards, of the British Museum of Natural History, has recently completed a monographic review of the New Zealand Tipuloidea. The writer would express his most sincere gratitude to Mr. Edwards for the privilege of studying this manuscript in advance of publication. The appearance in press of this great work will do much to stimulate the study of the very interesting crane-fly fauna of New Zealand. In addition, the writer has availed himself of the opportunity to submit certain doubtful species of the very large genus *Gynoplistia* to Mr. Edwards for his expert opinion and comparison with the unrivalled series of types of New Zealand Tipuloidea in the collection of the British Museum.

Dicranomyia subviridis, sp. n.

General coloration light yellow; antennæ dark brown; wings nearly hyaline, the costa tinged with green; *Sc* ending far before the origin of *Rs*; *Rs* short, about equal to the deflection of R_{4+5} .

Male.—Length about 5.5 mm.; wing 6.5 mm. *Female*.—Length 6.2 mm.; wing 7.2 mm.

Rostrum pale obscure yellow; palpi light brown. Antennæ dark brown, the scapal segments very little paler; flagellar segments submoniliform in the female, slightly more elongate in the male. Head yellow, paler posteriorly, passing into gray on the genæ.

Mesonotum clear yellow, unmarked, scutellum and median area of scutum almost white. Pleura concolorous. Halteres pale, the knobs a little darker. Legs with the coxæ and trochanters pale, tinged with green; remainder of legs pale, the terminal tarsal segments dark brown. Wings nearly hyaline, iridescent, the veins strongly tinged with green, especially the outer end of costa. Venation: Sc short, Sc_1 ending far before the origin of Rs , the distance being nearly, if not quite, twice Rs ; Sc_2 apparently lacking; Rs short, subobsolete, entirely without macrotrichia, subequal to, or shorter than, the deflection of R_{4+5} ; cell $1st\ M_2$ closed; basal deflection of Cu_1 before the fork of M .

Abdomen pale brownish yellow, unmarked; in the female, the basal segments are infuscated but this is apparently due to dried egg-masses within the body; ovipositor reddish, the bases of the valves tinged with green.

Hab. New Zealand (South Island). *Holotype*, ♂, Nelson, November 8, 1920 (*A. Philpott*). *Allotopotype*, ♀, October 23, 1920. *Paratopotype*, ♀, October 23, 1920.

Type in the collection of the Cawthron Institute.

In its general appearance, *D. subviridis* is strikingly like *D. conveniens* (Walker), a very different fly. It belongs to the *monilicornis* group, distinguished by the short subcosta, very short sector and closed cell $1st\ M_2$.

Dicranomyia sperata, sp. n.

General coloration obscure brownish yellow; head dark brownish black; wings whitish subhyaline with conspicuous pale brown washes, the most conspicuous at the wing-tip; Sc long; r long and strongly arcuated; cell $1st\ M_2$ long and narrow, the basal deflection of Cu_1 at the middle of its length.

Female.—Length 9 mm.; wing 10.5 mm. Described from an alcoholic specimen.

Rostrum and palpi dark brown. Antennæ dark brown, the second scapal segment a little paler. Head dark brownish black.

Mesonotum light brownish yellow, the præscutum with three slightly darker brown stripes; scutal lobes also darker brown; scutellum more yellowish. Pleura obscure yellow, the mesosternum faintly darkened. Halteres obscure yellow, the knobs dark brown. Legs light brown, the femoral bases a little lighter, the terminal tarsal segments dark brown. Wings whitish subhyaline with conspicuous pale brown washes; cells C and Sc light brown; a brown wash along vein Cu and another near midlength of $1st\ A$; anal angle of wing faintly darkened; cord and outer end of cell $1st\ M_2$ narrowly seamed with brown; stigma elongate, brown; the most conspicuous brown wash occupies the wing-tip beyond cell $1st\ M_2$ including about the outer half of cells $2nd\ R_1$ and R_3 ; all except the base of R_5 ; all of $2nd\ M_1$; the cephalic half of M_3 ;

veins dark brown. Venation: Sc long, Sc_1 ending just beyond mid-length of R_s , Sc_2 near mid-distance between the origin of R_s and the tip of Sc_1 ; R_s long, provided with seven macrotrichiae; r very long and strongly arcuated, longer than the basal deflection of Cu_1 , located at the tip of R_1 ; deflection of R_{1+5} angulated and spurred; cell 1st M_2 long and narrow; basal deflection of Cu_1 at midlength of cell 1st M_2 .

Abdominal tergites yellowish brown the sternites a little darker with the incisures narrowly and indistinctly pale. Ovipositor with elongate valves.

Hab. New Zealand (South Island). *Holotype*, ♀ Mt. Grey, Canterbury, November, 1916 (*J. W. Campbell*). *Paratypes* ♀ ♀, Ben Lomond Otago, December 30, 1921, January 2, 1922, (Geo. Howes).

***Amphineurus senex*, sp. n.**

General coloration brown; wings and legs unvariegated; R_s square at origin; R_{2+5} short but evident; cell 1st M_2 closed. *Male*.—Length 4.3 mm.; wing 5.5 mm.

Rostrum and palpi dark brown. Antennae with the scapal segments dark brown; flagellar segments obscure yellow, with conspicuous erect, black verticils. Head greyish ochraceous, the vertex with very conspicuous, light yellow, scale-like hairs.

Mesonotal præscutum greyish ochraceous with two narrow dark brown intermediate stripes, very narrowly and indistinctly separated by a capillary pale line; lateral stripes not indicated; pseudo-sutural foveae very conspicuous, elongate, lying transversely, dark brown; tuberculate pits lying a little cephalad of the level of the foveae, pale, one on either side of the capillary pale line; remainder of mesonotum light brown. Pleura light brownish grey variegated with darker brown; a group of conspicuous yellow hairs beneath the wing-root. Halteres yellow, the stem, except the base, densely clothed with appressed, dusky scale-like hairs; apex of knobs yellowish. Legs with the coxæ and trochanters obscure yellow, the former clothed with yellow scale-like hairs; remainder of the legs dark brown. Wings greyish subhyaline, the veins and membrane densely clothed with brown macrotrichiae to almost completely conceal the coloration; veins pale brown. Venation: R_s almost square at origin, feebly spurred; R_{2+3} short, about equal to the deflection of R_{4+5} ; r on R_2 about twice its length beyond the fork; cell 1st M_2 closed, long and narrow, gradually widened distally; m nearly three times as long as the outer deflection of M_3 ; basal deflection of Cu_1 just before the fork of M .

Abdomen dark brown, clothed with yellow hairs. Male hypopygium with the apices of the pleurites long-drawn-out, contiguous at their tips; the forceps at base of pleurites slender, acicular, curved, clothed on the inner face with pale erect hairs; second pair of forceps larger, black, compressed, the tips slender, curved and directed laterad.

Hab. New Zealand (South Island). *Holotype*, ♂, Old Man Range, Otago, January, 1920 (*Geo. Howes*). *Amphineurus senex* is allied to *A. perdecorus* Edwards.

Gynoplistia lyrifera, sp. n.

Head grey; mesonotal praescutum and scutum shiny brownish black, the lateral margins of the praescutum and the postnotum with a microscopic grey pubescence; scutellum obscure yellow; wings subhyaline with a heavy brown pattern; abdominal tergites bicolorous; gonapophyses of male hypopygium lyriform. *Male*.—Length 11 mm.; wing 10.6 mm.

Rostrum dark, dusted with gray; palpi dark brown. Antennæ with the first scapal segment dark brown; remainder of antennæ broken. Head light gray.

Pronotum light grey. Mesonotal praescutum shiny brownish black, more reddish near the suture, the humeral region and lateral margins conspicuously light grey; it is possible but scarcely probable that the specimen may be rubbed and the disk of the praescutum normally dull; scutal lobes shiny brownish black, the caudal lateral margin yellow, the caudal median area gray; scutellum conspicuously obscure yellow with a median spot at the base, the caudal margin with conspicuous setæ; postnotum shiny reddish brown with a sparse microscopic grey pubescence. Pleura brown with a heavy microscopic grey pubescence, the dorso-pleural membrane and the lateral sclerite of the postnotum brownish black, the latter heavily grey pubescent; mesosternum dark brown laterally, narrowly pale medially. Halteres with the stem obscure brownish yellow, the knobs broken. Legs with the coxæ pale brownish yellow, covered with a heavy whitish microscopic pubescence; trochanters obscure yellow; remainder of the legs broken. Wings subhyaline, heavily spotted and clouded with brown; cell *Sc* pale brown on the basal half; a large subquadrate dark brown spot at origin of *Rs*, not attaining *M*; stigmal area large, continued caudad along the cord to *r-m*, this area including the apices of cells *1st R*₁ and *R* and the bases of cells *R*₃ and *R*₅; remainder of cord and outer end of cell *1st M*₂ narrowly seamed with paler brown; wing-apex broadly pale brown, including the tip of cell *R*₂, a little less than the outer half of cells *R*₃ and *R*₅ and all of *M*₁ except the base which is clear; a pale brown cloud in the end of cell *Cu*₁; an extensive pale brown cloud occupies the basal half of cell *Cu* and the outer end of cell *1st A* above the end of vein *2nd A*; no darkening at base of cells *R* or *M*; veins dark brown. Venation; *Sc*₁ ending about opposite midlength of *R*₂₊₃; *R*₂₊₃ and basal deflection of *R*₄₊₅ subequal; tip of *R*₁ and *r* subevanescent, without macrotrichæ; petiole of cell *M*₁ about two-thirds the cell; basal deflection of *Cu*₁ at from two-thirds to three-fourths the length of the cell.

Abdominal tergites indistinctly bicolorous, the apical half of the segments shiny black, the basal half reddish brown with a sparse light

grey microscopic pubescence; a darker subterminal ring; hypopygium orange-yellow. Hypopygium with the pleurites short and stout, the caudal-proximal angle produced into a short stout lobe that bears a dense tuft of short bristles; a yellowish flattened lobe at base of pleurite on proximal face; the two usual pleural appendages are broadly united basally, the outer lobe broad-based, tapering distally, the tip suddenly narrowed into a curved point, not blackened or provided with spines; inner lobe broad-based, suddenly narrowed to the slender neck, the head slightly enlarged but unarmed. The two gonapophyses are very conspicuous, taken together appearing lyriform, each about as long as the pleurite, gently curved outwardly, deeply bifid at tip, the arms not divergent, lateral arm twice as long as the straight inner arm and curved strongly laterad. Penis-guard broad-based, tapering suddenly to the apex, much shorter than the gonapophyses.

Hab. New Zealand. *Holotype*, ♂, exact locality unknown (J. W. Campbell).

***Gynoplistia trispinosa*, sp. n.**

General coloration reddish brown, the mesonotal præscutum more blackened, especially laterally; pleura whitish, the dorso-pleural region narrowly blackened; femora without pale rings; wings subhyaline with a very restricted pattern; abdomen reddish brown; male hypopygium with the outer pleural appendage a paddle-like, blackened blade; gonapophyses on either side with three spines. *Male*.—Length 14 mm.; wing 13 mm.

Rostrum reddish; basal segment of palpus reddish, the terminal segments dark brown. Antennæ with the scapal segments yellow, the flagellum dark brown with only the base of the first segment a little paler; antennæ 21-segmented, the formula being 2+2+14+3; longest flabellation about six times as long as the segment. Head black, the occiput more reddish; a very faint, appressed, gray pubescence.

Pronotum brown, the scutellum shiny yellow, only slightly infuscated medially. Mesonotal præscutum shiny brownish black, the stripes entirely confluent, the median stripe tinged with reddish; humeral region reddish brown; remainder of mesonotum shiny reddish brown. Pleura reddish brown with a heavy, microscopic, white pubescence, the dorso-pleural region narrowly blackened; mesosternum more reddish. Halteres brownish yellow, the knobs darker. Legs with the coxæ heavily white pubescent as on the pleura; trochanters reddish; femora reddish brown, the tips slightly darker; tibiæ brown, the tips narrowly darker; tarsi dark brown. Wings subhyaline; cell *Sc* and stigma brown; a small, circular, brown spot at origin of *Rs*; very narrow brown seams along the cord and outer end of cell *1st M*₂; wing-tip in cells *R*₃, *R*₅ and *M*₁ very faintly clouded with brown; a faint brown seam along vein *Cu* to the wing-margin; a faint wash near midlength of vein *1st A*; veins



dark brown. Venation: r at tip of R_1 and at two-thirds R_2 ; cell M_1 only a little longer than its petiole; basal deflection of Cu_1 at midlength of cell 1st M_2 .

Abdomen uniformly reddish brown; a very faint and indistinct, capillary, brown, median line, broadly interrupted at the posterior margin of the segments. Male hypopygium reddish brown; outer pleural appendage broad at base, the apex dilated into a dark brown paddle-like blade; inner pleural appendage with the apical half considerably narrower than the basal half and provided with numerous tiny setae. Gonapophyses complex, each side with three spines; the most cephalic of these is the smallest and very slender; the second spine is a powerful horn directed proximad, lying immediately caudad of the basal spine; besides these there is an elongate spine on either side of the penis-guard, directed caudad, gradually narrowed to the tip. Penis-guard very small and weak.

Hab. New Zealand (South Island). *Holotype*, ♂, Otatara, Otago, November 25, 1906 (*A. Philpott*).

Gynoplistia spinigera, sp. n.

General coloration light gray; antennae of male 17-segmented; wings sybhyaline, the pattern almost obliterated; stigma distinct; abdomen light brown with a subterminal black ring; penis-guard with conspicuous serrations before the apex. *Male*.—Length 11 mm.; wing 10 mm.

Rostrum light gray; palpi broken. Antennae brown, the first scapal segment slightly dusted with gray; basal flagellar segment paler on basal half; antennae 17-segmented, the formula being $2+2+9+4$, the longest flabellation about four times the segment; eleventh flagellar segment with only a tiny protuberance and may not be considered pectinate by some, in which case the formula would be $2+2+8+5$. Head light gray with a U-shaped mark on the vertex, the arms becoming evanescent behind.

Pronotum light gray. Mesonotal praescutum gray with four rust-brown stripes, the intermediate pair becoming obsolete behind, being replaced by the ground-color; lateral stripes much broader; humeral region darker gray; pseudosutural foveae very large, deep reddish brown; scutum gray medially, the centers of the lobes darker; scutellum destroyed by pin; postnotum gray. Pleura pale reddish brown, dusted with gray. Halteres broken. Legs with the coxae pale reddish brown, dusted with gray; trochanters yellow; femora and tibiae brown, pale ring on femora almost obliterated; tarsi dark brown. Wings subhyaline, the pattern very reduced; cells C and Sc very pale brown; stigma conspicuous dark brown; a small brown cloud at basal deflection of R_{4+5} ; very indistinct brown seams at origin of Rs ; along the cord; a small, faint cloud at outer end of vein Cu_2 and another on vein 1st A immediately above the end of vein 2nd A ; wing-tip clear; veins brown.

Venation: Sc_1 ending opposite one-fourth R_{2+3} , Sc_2 reduced to a point by the downward bending of Sc ; Rs long, strongly arcuated at origin, in alignment with R_{2+3} which, in turn, is in alignment with R_3 ; r near midlength of R_2 ; $r-m$ reduced, about equal to, or shorter than, m ; petiole of cell M_1 about two-thirds the cell; basal deflection of Cu_1 near midlength of the cell.

Abdominal segments light brown, the basal tergite dusted with gray; a small, circular, darker brown median spot on each tergite; seventh segment black; hypopygium light brown. Male hypopygium with the ninth tergite broad at base, narrowed distally, the apex with a broad V-shaped notch. Pleurites comparatively slender, the apex a little produced; a small, cylindrical lobe on proximal face at base; outer pleural appendage angularly bent just before midlength, the tip very obtusely rounded and here microscopically spinulose; two small spines immediately before the apex; inner pleural appendage smaller, the proximal face beyond midlength slightly notched. Gonapophyses not developed. Penis-guard long and straight, the apex slightly curved, before the tip the lateral margins of the guard with conspicuous serrations.

Hab. New Zealand (South Island). *Holotype*, ♂, West Plains, Otago, November 5, 1900. (*A. Philpott*).

***Gynoplistia cladophora*, sp. n.**

General coloration shiny black; antennæ of male 16-segmented; wings with a faint yellow tinge; cell Sc dark brown; wing-pattern very restricted; abdomen dark reddish brown, shiny; gonapophyses of male hypopygium widely separated, each appearing as a slender curved horn that bears a small lateral spine near midlength. *Male*.—Length 9 mm.; wing 9.2 mm.

Rostrum black, bearing a conspicuous brush of long, yellow hairs; mouthparts and palpi black. Antennæ black, 16-segmented, the formula being $2+2+10+2$; longest flabellation about seven times as long as the segment that bears it; pectination of twelfth segment shorter than the segment; terminal flagellar segment larger than the others. Head rather dull black.

Pronotum with a grayish yellow pubescence medially, shiny reddish laterally. Mesonotal præscutum shiny reddish laterally, with a sparse microscopic pubescence, the entire disk occupied by three confluent shiny black stripes; scutal lobes likewise largely shiny black, the remainder brown; scutellum brown; postnotum brown basally, shiny black on the posterior half; lateral sclerites of postnotum reddish brown. Pleura dark liver-brown, sparsely pubescent, most conspicuous on the mesepisternum. Halteres yellow. Legs with the coxæ dark brown; trochanters slightly paler brown; femora brown, the tips dark brown; tibiæ and tarsi black; legs comparatively short and stout.

Wings with a faint yellowish tinge; cells Sc , Sc_1 and a seam along vein Cu dark brown; stigma dark brown, continued caudad as a comparatively narrow seam along the deflection of R_{4+5} ; cord, outer end of cell $1st\ M_2$ and most of the longitudinal veins very narrowly and indistinctly seamed with pale brown; a quadrangular brown area at origin of Rs , this not attaining M ; wing-tip scarcely darkened; veins dark brown. Venation: Sc_1 ending just before the end of Rs , Sc_1 about twice Sc_2 ; Rs very long, angulated and spurred at origin; R_{2+3} short, about equal to or shorter than $r-m$; r at about two-thirds R_2 ; cell R_2 very wide at outer margin; inner ends of cells R_4 and $1st\ M_2$ proximad of inner end of cell R_5 ; petiole of cell M_1 about two-thirds the cell; basal deflection of Cu_1 just before midlength of cell $1st\ M_2$.

Abdominal tergites shiny, dark reddish brown, the lateral margins more blackened. Hypopygium with the pleurites short and stout; a short spine on proximal margin at base; distal ends of pleurites produced caudad into a flattened, obtuse lobe that is about one-half the length of the pleural appendage; outer pleural appendage stout, flattened, with a conspicuous notch before the tip; inner pleural appendage subequal in length but more slender, gently curved. Gonapophyses very complicated in structure, widely separated from one another, each side appearing as a long, slender, curved horn that bears a small lateral spine near midlength; the long, curved apex is directed laterad, thence proximad and caudad, almost in a circle. Penis-guard small and slender.

Hab. New Zealand (South Island). *Holotype*, ♂, Bluff, Otago, November 29, 1914 (*A. Philpott*).

Gynoplistia spinicalcar, sp. n.

General coloration shiny yellowish brown; head coal-black; tibial spurs flattened, the margins microscopically serrulate; wings nearly hyaline, rather heavily marked with brown; a brown spot at the base of cells R and M . *Female*.—Length about 12 mm.; wing 8.3 mm.

Rostrum and palpi dark brownish black. Antennæ with the scapal segments reddish fulvous; flagellum broken. Head shiny coal-black.

Pronotum black dorso-medially, obscure yellowish laterally. Mesonotum shiny yellowish brown without well-defined markings; scutum shiny yellow. Pleura dark brown, the mesepisternum with an area of appressed, silvery-white pubescence. Halteres yellow, the knobs brown. Legs with the coxæ and trochanters yellow; femora yellowish testaceous, the dilated apices conspicuously and extensively blackened; tibiæ dark brown, the tips blackened; tarsi black; hind legs missing; tibial spurs flattened, narrowed basally, slightly enlarged distally and with the margin microscopically serrulate. Wings nearly hyaline; cell Sc_1 , except the outer end, dark brown; a large brown blotch at origin of Rs , extending from R to M ; stigma dark brown, the color continued caudad along the cord as a very broad seam that continues across the

wing, cell Cu_1 being dark except at the outer anterior angle; cell 1st M_2 with a circular hyaline centre; wing-tip in cells R_2 to M_3 narrowly darkened; a conspicuous brown cloud at the end of vein 2nd A including the adjoining parts of cells Cu , 1st A and 2nd A ; a conspicuous, oval, brown spot at the origin of M , almost equally distributed in cells R and M ; veins dark brownish black. Venation: Sc_2 at tip of Sc_1 and much exceeding it in length; Rs gently arcuated at origin; R_{2+3} shorter than $r-m$; R_2 almost perpendicular at origin; r near tip of R_1 ; petiole of cell M_1 about as long as the cell; cell 1st M_2 rectangular, the basal deflection of Cu_1 just beyond one-third its length.

Abdomen with the basal tergites greenish black; remaining tergites brown with blue and purple reflexions; sternites lighter brown. Ovipositor reddish horn-color, the valves very long and slender.

Hab. New Zealand (North Island). *Holotype*, ♀, Ohakune, altitude 2018 feet, March 1, 1919, (*T. Harris*).

The type of *Gynoplistia spinicalcar* was sent to Mr. Edwards for comparison with his numerous types of New Zealand *Gynoplistiæ*. He writes "Closely allied to *G. tridactyla* Edw. and *G. speciosa* Edw. but I think certainly distinct. Note the peculiar spurs of the middle tibiae which are quite similar in the two species mentioned."

Gynoplistia harrisi, sp. n.

General coloration of mesonotum shiny brownish yellow; pleura shiny black, including the posterior and middle coxæ; legs orange, the femora with a conspicuous, dark brown, sub-terminal ring; wings with a strong yellowish tinge and a heavy brown pattern; cell R_2 sessile; abdominal tergites shiny obscure yellow, segments six to eight metallic purple. *Female*.—Length 8 mm.; wing 8 mm.

Rostrum obscure yellow; palpi dark brown. Antennæ with apparently only 14 segments, all flagellar segments, except the terminal four, pectinate; terminal flagellar segment enlarged, apparently formed by the fusion of two segments; scapal segments obscure chestnut-brown; flagellar segments one and two obscure yellow, the pectinations dark brown; remainder of the antennæ dark brown. Head obscure brownish yellow, somewhat darker between the eyes.

Pronotum obscure yellow. Mesonotal præscutum shiny brownish yellow with an indistinct, median, brownish black line; remainder of mesonotum shiny brownish yellow. Pleura shiny brownish black. Halteres short, pale, the large knobs darker. Legs with the posterior and middle coxæ shiny brownish black; fore coxæ obscure yellow; trochanters yellow; femora yellow with a narrow but conspicuous, sub-terminal, dark brown ring; tibiae obscure yellow; posterior tibiae

brown with the bases and tips paler; metatarsi obscure yellow, the terminal tarsal segments dark brown; the posterior legs are longer than the others, the femora somewhat swollen, the tibiae more or less curved and only the terminal two tarsal segments infuscated. Wings with a strong yellowish tinge, brightest in cells *C*, *Sc* and *2nd A*; a conspicuous brown pattern distributed as follows: a brown area in the base of cell *R*; a large, quadrate area at origin of *Rs* that barely reaches *M*; the broad stigmal area extends as a solid block to cell *1st M*₂ where it splits, the center of the cell being of the ground-color; wing-tip broadly pale brown, including the apices of cells *R*₂, *R*₃, *R*₅, *M*₁ and *2nd M*₂; a conspicuous brown cloud in cells *Cu* and *1st A* at the end of vein *2nd A*; veins dark brown, more flavous in the yellow areas; microtrichiae abundant in all cells beyond cord; in the radial cell they are practically lacking outside of the darkened areas. Venation: *Sc*₁ ending just before the tip of *Rs*, *Sc*₂ faint, at the tip of *Sc*₁; *Rs* long, feebly angulated at origin; cell *R*₂ sessile, the petiole entirely lacking; *r* close to tip of *R*₁; *r-m* very short, the deflections of *R*₄₊₅ and *M*₁₊₂ being correspondingly longer; petiole of cell *M*₁ a little shorter than the cell; basal deflection of *Cu*₁ at midlength of cell *1st M*₂.

Abdominal tergites shiny obscure yellow; segments six to eight metallic purple; lateral margins of tergites narrowly blackened; ninth segment and ovipositor orange; basal sternites obscure yellow; subterminal segments dark. Ovipositor with the valves very long and slender, straight.

Hab. New Zealand (North Island). *Holotype*, ♀, Ohakune, altitude 2018 ft., February, 1920. (*T. Harris*).

Gynoplistia harrisi is a very distinct species of the genus. It is dedicated to the collector, Mr. Thomas R. Harris.

Gynoplistia unimaculata, sp. n.

Allied to *G. cuprea* Hutton; a conspicuous, slender tubercle on lateral sclerite of mesonotal postnotum; wings yellow, unmarked except for the dark brown stigma; abdomen with the basal tergite purple, segments two to six orange-yellow. *Sex?*—Wing 12 mm. Head destroyed by insect pests.

Mesonotum shiny reddish brown. Pleura reddish brown, the mesepisternum and dorsal parts of the mesosternum with a golden-yellow pollen; ventral portions of the mesosternum with metallic purple reflexions; lateral sclerites of postnotum immediately cephalad of the base of the halteres with a conspicuous, slender tubercle, directed laterad and slightly caudad. Halteres yellowish ochreous. Legs with the coxæ and trochanters reddish brown; femora light orange; tibiae dark brown, the extreme base paler; tarsi dark brown. Wings with a strong brownish yellow tinge, clearer yellow in the costal region and the cells basad of the origin of *Rs*; no markings on the wing except the conspicuous, dark brown stigma; veins dark brown, more yellowish in

the flavous areas. Venation: Sc_1 ending beyond the fork of R_s , Sc_2 longer than Sc_1 ; R_{2+3} shorter than the deflection of R_{1+5} .

Abdomen with the basal tergite brilliant, dark metallic purple; segments two to six conspicuous orange-yellow with very faint purplish tints on the sternites; no trace of the coppery tints of *G. cuprea*.

Hab. New Zealand. *Holotype*, Sex?, exact locality unknown (Received from Dr. Campbell).

Although the unique type of this species is in poor condition, there can be no question of its specific validity. The almost unicolorous yellow wings with the stigma dark brown render the fly a conspicuous one.

Gynoplistia splendens, sp. n.

General coloration shiny reddish brown; antennæ 19-segmented; mesopleura with a patch of golden-yellow hairs; a conspicuous tubercle on mesepimeron; femora fulvous; wings bright yellow, marked with brown, including a broad apical and caudal margin. *Female*.—Length about 19 mm.; wing 15.5 mm.

Rostrum shiny yellowish brown; palpi dark brown. Antennæ dark brown; antennæ 19-segmented, the formula being $2+2+9+6$; the twelfth flagellar segment bears a small lateral tubercle that is shorter than the segment but which might be considered as being a pectination, in which case the formula would be $2+2+10+5$; longest flagellar pectination between three and four times as long as the segment. Head shiny brownish red, black between the eyes.

Pronotum dark reddish brown. Mesonotum shiny reddish brown, the median area of the præscutum almost black; median sclerite of postnotum paler laterally. Pleura dark chestnut brown with an extensive area of short, dense, appressed, golden-yellow hairs on mesepisternum and cephalic margin of mesepimeron; dorsal margin of mesepimeron, immediately beneath the wing-root, produced laterad and caudad into a stout, conspicuous tubercle. Halteres dark brown, the knobs conspicuously orange-yellow. Legs with the coxæ and trochanters dark chestnut-brown; femora rich fulvous, the tips narrowly blackened; fore tibiæ brown, the tips dark brown; mid-tibiæ reddish brown, near midlength passing into dark brown; posterior tibiæ fulvous, concolorous with femora, only the tips narrowly blackened; tarsi black. Wings bright yellow with a rather extensive brown pattern; a large spot at origin of R_s , barely confluent with the proximal end of a conspicuous brown seam along the distal half of vein M ; the stigmal area includes the outer end of cell Sc , base of Sc_1 and a broad seam along the cord and outer end of cell $1st M_2$; wing-tip broadly and conspicuously infuscated, extending from cell R_2 to the end of $2nd A$, in cell $1st A$ continued basad along vein $1st A$ to beyond one-third the length of the

vein; vein *Cu* narrowly seamed with dark brown. Venation: Sc_2 much longer than Sc_1 ; r at tip of R_1 ; R_{2+3} shorter than $r-m$; petiole of cell M_1 about two-thirds the cell; basal deflection of Cu_1 just before midlength of the cell.

Abdomen shiny dark brown with conspicuous coppery and purple reflections as in the *cuprea* group. Ovipositor with the valves gently upcurved, reddish horn-color.

Hab. New Zealand (North Island). *Holotype*, ♀, Ohakune, altitude 2018 feet, February 15, 1920 (*T. Harris*).

Gynoplistia splendens belongs to the *cuprea* group. The unique type was submitted to Mr. Edwards who has kindly compared it with related species in the British Museum. He writes "Rather near *tuberculata* Edw. and *cuprea* Hutton but equally distinct from both." The collector states that this fly mimics a Hymenopterous insect, determined by the British Museum authorities as *Prionocnemis wakefieldi* Kirby.

Macromastix flavoscapus sp. n.

General coloration light yellow, including the frontal prolongation of the head and the first scapal segment; mesonotal præscutum with three brownish black stripes, the median stripe ending near midlength of the sclerite; each scutal lobe with two brownish black spots; a small spot on each side of scutellum; pleura yellow, in some cases with a small spot above the fore coxa and middle coxa; wings subhyaline, the costal region and stigma brownish black; wing-tip narrowly darkened; abdomen yellow, the tergites with three narrow black stripes. *Male*.—Length 12.5 mm.; wing 18 mm.

Female.—Length 12 mm.; wing 18.5 mm.

Frontal prolongation of the head entirely light yellow, only the tip of the slender nasus a little darkened; palpi black. Antennæ short in both sexes; first scapal segment entirely light yellow; remainder of antennæ black. Head light yellow, unmarked.

Pronotum yellow, unmarked. Mesonotal præscutum orange-yellow with three brownish black stripes, the lateral stripes remote from the median stripe, the latter tending to be evanescent behind, always indicated on the anterior half of sclerite, replaced by deep orange posteriorly; scutum yellow, each lobe with two black areas, the largest lying more proximad and caudad; scutellum orange-yellow with a small black spot on the caudal margin on either side of the median lobe; postnotum orange-yellow. Pleura orange-yellow; in some cases a small black spot above the fore and one above the mid-coxa. Halteres brown, the extreme base of the stem yellow, the knobs darker brown. Legs with

the coxæ orange-yellow; hind and mid trochanters brownish black; fore trochanters yellow with a black spot on the lower face; remainder of the legs black, the fore femora narrowly yellow basally. Wings nearly hyaline, the extreme tip clouded with darker; cells *C*, *Sc* and the stigma dark brownish black; veins black. Venation: *r* present; petiole of cell *M*₁ variable in length, sometimes longer than *r-m*, in some cases entirely lacking.

Abdomen light yellow, the tergites with three narrow black longitudinal stripes, the median stripe narrower than the yellow sublateral stripes; caudal margin of tergite seven and all of segments eight and nine black; sternites with a narrow median stripe.

Hab. New Zealand. *Holotype*, ♂, exact locality unknown (J. W. Campbell). *Allotopotype*, ♀. *Paratopotype*, ♂.

Macromastix atroflava, sp. n.

General coloration orange-yellow; antennæ and palpi black; a capillary black line on vertex; mesonotal præscutum with three stripes; legs black, the coxæ and trochanters orange; wings subhyaline, the costal region and stigma dark brown; abdomen yellow, the tergites with three, narrow, black, longitudinal stripes. *Male*.—Length 11.5–12 mm.; wing 16 mm. *Female*.—Length 11 mm.; wing 14 mm.

Frontal prolongation of the head yellow, the nasus and a linear triangle behind it, black; palpi black. Antennæ dark brownish black throughout. Head yellow with an elongate, capillary dark brown streak on vertex.

Pronotum entirely light yellow. Mesonotal præscutum orange-yellow with three conspicuous black stripes that are narrowly margined with brown; in the paratype, and less distinctly in the allotype, the stripes are entirely black; median stripe narrowed behind, not attaining the suture; lateral stripes narrower, crossing the suture and suffusing the lateral margins of the scutal lobes; remainder of mesonotum orange-yellow, immaculate. Pleura orange-yellow, immaculate, the dorso-pleural region light yellow. Halteres dark brown, the base of the stem narrowly orange. Legs with the coxæ and trochanters orange; remainder of legs black. Wings subhyaline, the costal region and stigma dark brown, this including cells *C*, *Sc*, *Sc*₁ and the stigma; wing-tip, in cells *R*₂, *R*₃, and *R*₅ very indistinctly darkened; veins dark brown, slender. Venation: *Rs* about one-third longer than *R*₂₊₃; petiole of cell *M*₁ very short, about equal to or a little longer than, *r*; basal deflection of *Cu*₁ just before midlength of cell 1st *M*₂.

Abdomen yellow, the basal tergite orange, the caudal margin of the other tergites except the last two, narrowly orange; tergites narrowly trilineate with black, the broad, yellow, sublateral stripes from two to three times as wide as the mid-dorsal black stripe; segments eight and nine black.

Hab. New Zealand (South Island). *Holotype*, ♂, Blackball, West Coast, December 1916 (*J. W. Campbell*). *Allotopotype*, ♀, December, 1917. *Paratopotype*, Sex?, with the type.

***Macromastix lunata fuscolatera*, subsp. n.**

Female.—Length about 12 mm.; wing 16.5 mm.

In general appearance, very similar to *M. lunata* Hutton, differing as follows:

Head and thorax with the erect, pale hairs much less conspicuous than in *lunata*, these being short and subappressed.

Head dark brown, the lateral margins of the vertex adjoining the eyes broadly ochreous. Mesonotal præscutum light gray with three distinct, dark brown stripes, the broad median stripe narrowly split by a capillary pale line; scutal lobes with dark centers; remainder of mesonotum and the pleura light gray. Legs with the coxæ gray; trochanters yellow; femora and tibiæ light yellowish brown, the tips dark; tarsi dark brown. Wings brown, the stigma darker; wing-tip entirely dark; an interrupted subhyaline, lunate band in cell *M*, the proximal end barely extending into cell *R*, the distal end occupying the outer end of cell *R*, this subhyaline band narrowly interrupted across cell *M*; cell *R*₂ clear except the extreme outer angle; basal half of cell *R*₃ subhyaline; bases of cells *Cu*, 1st *A* and 2nd *A* pale. Venation: cell 2nd *A* narrower than in *lunata*.

Abdomen with the four basal tergites dull rufous, with three very broad and conspicuous blackish stripes; extreme lateral margins of these tergites, and the succeeding segments, dusted with gray, more whitish on the lateral margins of tergites five and six. In typical *lunata*, the erect setæ on the head and thorax are much more conspicuous; basal abdominal tergites unmarked except medially; basal half of tergite two clear gray, in marked contrast to the posterior half and the other basal tergites. I have before me one of Hutton's paratypes of *lunata*, through the kindness of Mr. R. Speight. It is possible that the male of this species will be found to have short antennæ, in which case the form would take full specific rank.

Hab. New Zealand (North Island). *Holotype*, ♀, Mt. Ruapehu, alpine zone, 4000–5000 feet, January, 1921 (*M. N. Watt*). "In thick bush."

***Macromastix intermedia*, sp. n.**

General color gray, the præscutum with four brown stripes; wings comparatively long and narrow, dark brown, with a subhyaline vitta extending from before midlength of the wing in cells *R* and *M*, through the bases of cells *R*₂ and *R*₃ to the margin, narrowly interrupted along the cord; cells *M*₁, 2nd *M*₂

and M_3 pale; abdomen beyond the basal segment dark grayish brown throughout. *Male*.—Length about 9 mm.; wing 14 mm.

Frontal prolongation of the head gray, more brownish laterally; nasus very long; palpi dark brown. Antennæ very short, brown. Head grayish brown, paler gray adjoining the inner margin of the eyes.

Mesonotal præscutum gray with four brown stripes, the intermediate pair only narrowly separated by a capillary line; scutum pale buff, each lobe with a brown discal area; scutellum and postnotum pale buff. Pleura gray. Halteres dark brown. Legs with the coxæ gray; trochanters brownish yellow; remainder of the legs broken. Wings comparatively long and narrow, more than four and one-half times as long as wide; dark brown with a conspicuous, subhyaline, vittate pattern, this appearing as a lunate area in the outer end of cell M , including also the distal end of R and the proximal end of 1st M_2 ; bases of cells R_2 and R_3 rather narrowly pale; cells M_1 , 2nd M_2 and M_3 and the bases of cells Cu , 1st A and 2nd A are much paler than the ground-color; veins dark brown. Venation: Basal section of M_{3+4} subequal to basal section of M_{1+2} ; petiole of cell M_1 about equal to m ; cells M_1 , 2nd M_2 , M_3 and Cu_1 deeper than in *M. alexanderi* Edw.; cell 2nd A narrower than in *alexanderi* but wider than in *M. vittata* Edw.

Abdomen dark grayish brown throughout, only the basal tergite a little paler; ninth tergite of male hypopygium with a deep notch.

Hab. New Zealand. *Holotype*, ♂, exact locality unknown (*J. W. Campbell*).

Macromastix hudsoniana, sp. n.

Size small (wing of ♂ under 10 mm.); antennæ of male longer than body; general coloration pale brown, the præscutum quadrivittate with darker brown; thorax without conspicuous erect setæ; wings with a brown tinge, cells C , Sc and the stigma darker brown. *Male*.—Length 7 mm.; wing 9.5 mm.; antenna 10 mm.

Frontal prolongation of head brown; palpi dark brown. Antennæ of male elongate, greatly exceeding the body, dark brownish black throughout; first flagellar segment a little longer than the combined scapal segments, only indistinctly separated from the second flagellar segment; flagellar segments beyond the third gradually decreasing in length, the last segment very small, subglobular; flagellar segments six to nine each with a pair of long, verticillate bristles immediately before midlength. Head brown, more grayish adjoining the inner margin of the eyes.

Mesonotal præscutum pale brownish testaceous with four darker brown stripes; scutum similar, the lobes darker brown; scutellum and postnotum brownish testaceous; mesonotum subglabrous. Pleura pale

grayish pruinose. Halteres brown, the knobs a little darker. Legs with the coxæ and trochanters brown; femora, tibiæ and metatarsi light brown, the tips dark brown; remainder of tarsi dark brown. Wings with a strong brown tinge; cells *C* and *Sc*, and the stigma, darker brown; veins dark brown. Venation: *Rs* rather long, about one-third longer than *R*₂₊₃; basal section of *R*₂ about one-third the distal section; petiole of cell *M*₁ longer than the cell; basal deflection of *Cu*₁ fused with *M* at about two-fifths the length of cell 1st *M*₂; cell 2nd *A* comparatively narrow.

Abdomen uniformly dark brown, the hypopygium and preceding segment brighter.

Hab. New Zealand (South Island). *Holotype*, ♂, Port Hills, Banks Peninsula, Canterbury, February 8, 1917.

Macromastix hudsoniana is distinguished from all described species by the combination of small size, subglabrous thorax and elongate male antennæ. It is named in honor of the veteran student of New Zealand Tipulidæ, George V. Hudson to whom I am indebted for many favors.